



Ordinances

For

PG Diploma in Computer Applications (PGDCA)

Syllabus and Scheme

(Under Choice Based Credit System)

Session 2019-2020



DESH BHAGAT UNIVERSITY, MANDI GOBINDGARH
Faculty of Information Technology and Library Sciences
Department of Computer Science and Applications

Ordinances for the PG Diploma in Computer Applications (PGDCA)

1. Duration of Course:

The duration of course shall be one academic years consisting of two (2) semesters. The duration of each semester will be 18-20 weeks with ninety (90) teaching days.

2. Maximum period for passing PGDCA.

The candidate must pass all the subjects of all the semesters of PGDCA in two (2) years. If the candidate fails to pass all the subjects of the course within stipulated period, his/her registration will be cancelled.

3. Eligibility for admission

Graduate with 40% marks from a recognized University. 5% relaxation in marks shall be given to Schedule Caste/ Schedule Tribe or any rural and under privileged candidates.

4. Medium of Instructions

The medium of instruction during the course and examinations shall be English.

5. Examination Schedule, examination fee and examination forms:

- 5.1 The examination of Odd Semesters shall ordinarily be held in the month of December and that of Even Semesters in the month of May, or on such other dates as may be fixed by the competent authority.
- 5.2 The candidates will be required to pay examination fees as prescribed by the University from time to time.
- 5.3 The Examination Form must reach in the office of the Controller of Examinations as per the schedule notified, from time to time.
- 5.4 The Examination Forms must be countersigned by the Director/Head of the Department along with the following certificate :-
 - (i) that he/she has been on the rolls of the University Teaching Department during the academic term preceding the end

- semester examination;
- (ii) that he/she has attended not less than 75% lectures delivered to that class in each paper; and
- (iii) that he/she has a good moral character.

5.5 The shortage in the attendance of lectures of the candidate may be condoned by the Vice-Chancellor, on the recommendations of Head of the Department, as per rules.

6. **Re-admission**

In case name of a student is struck off from the rolls due to non-payment of fee or continued absence from classes in any subject for one month and he/she will be re-admitted after payment of re-admission fee as prescribed by the University from time to time. However, the student will be allowed to appear in the end semester examination of that paper (s) only after attending the required lectures/practicals delivered to that paper(s). However, if a student falls short of attendance in all courses offered in a semester he/she shall be required to repeat the semester, along with the next batch of students.

7. **Scheme of Examinations**

The examination in each semester shall be conducted according to the syllabus prescribed for the semester. The end semester examination for each paper shall be of three hours duration.

8. **Minimum pass marks**

The minimum number of marks required to pass in each semester shall be 40% marks in each in Theory and Practical/Laboratory/Seminar/Viva-Voce paper and in Internal Assessment, separately.

9. **Grading of performances**

9.1 **Letter grades and grade points allocations:-**

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given hereunder:-

Percentage of marks obtained	Letter Grade	Performance	Grade Point
91 – 100	O	Outstanding	10
81 – 90	A ⁺	Excellent	9
75 – 80	A	Very Good	8
71 – 74	B ⁺	Good	7
61 – 70	B	Above average	6
51 – 60	C	Average	5

40 – 50	P	Pass	4
Less than 40	F	Fail	0
Absent	Ab	Fail	0

9.2 Grades O, A⁺, A, B, B⁺, C and P are pass grades.

9.3 A student who fails in any end semester examination shall be assigned a letter grade 'F' and a corresponding grade point of zero. A student who remains absent for any end semester examination shall be assigned a letter grade of 'Ab' and a corresponding grade point of zero. The student who have scored F & Ab grades should reappear in due course.

9.4 Computation of SGPA and CGPA

The Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) will be computed as follows:-

a) The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\text{SGPA (Si)} = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

where C_i is the number of credits of the ith course and G_i is the grade point scored by the student in the ith course.

b) The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

where S_i is the SGPA of the ith semester and C_i is the total number of credits in that semester.

c) The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

9.5 Conversion Formula

Percentage of marks can be calculated as: CGPA X 9.5

10. Award of Division

The division shall be awarded on the basis of Letter Grade as follows:

Letter Grade A, A ⁺ and O, provided the candidate must have passed all the Semester Examinations in the first available attempt.	First Division with Distinction
Letter Grade B ⁺ , A, A ⁺ and O	First Division
Letter Grade B	Second Division
Letter Grade C and P	Pass

11. **Internal Assessment of failed candidate**

The internal assessment award of a candidate who fails in the external examination shall be carried forward to the next Examination, if passed in Internal Assessment.

12. **Grace Marks**

12.1 The grace marks of 1% of total marks of the semester shall be given to a candidate to his best advantage so as to enable him to pass in one or more written papers, to make up aggregate to pass the examination/paper or for changing the result from FAIL to COMPARTMENT/PASS. If a fraction works out to be half or more, it shall be counted as one mark and fraction less than half shall be ignored

12.2 If a candidate appears in an examination to clear re-appear/compartments paper, the grace marks of 1% will be given only on the total marks of that particular paper.

13. **Re-evaluation**

A candidate who is not satisfied with his result may apply to the Examination Branch for re-evaluation in a subject/paper within 15 days of declaration of result along with a fee as prescribed by the university from time to time.

14. **Re-checking**

A candidate who is not satisfied with his result may apply to the Examination Branch for re-evaluation in a subject/paper within 15 days of declaration of result along with a fee as prescribed by the university from time to time.

15. **Special examination**

A Special Examination will be conducted for those students who are passing out but having re-appear(s) in the last semester and/or in the lower semesters. The special examination will be conducted within one month of the declaration of final semester result. The student shall have to pay prescribed fee for Special Examination.

16. **Re-appear/Supplementary examination**

In case of re-appear examination, the University will adopt even/odd semester examination or open semester system. The student will be eligible to appear in the re-appear papers of odd semester along with the odd semester regular examinations of subsequent batches and re-appear of even semester's paper of the even semester regular examinations in the case of even/odd semester examination. The student will be eligible to appear in the re-appear papers of all semesters (even/odd) along with regular examinations of open semester examinations. Controller of Examination will implement any of the above

examination system with the approval of the Vice-Chancellor.

17. Mercy Chance

The candidate will be given maximum two chances to appear in the supplementary examinations. After that, mercy chance may be given by the Vice-Chancellor on the recommendations of the Director of the concerned school on payment of a special fee.

18. Syllabus for re-appear candidates

A student who obtains re-appear(s) in a subject will be examined from the same syllabus which he/she studied as a regular student.

19. Promotion Criteria

A candidate who joins First Semester of PGDCA may on completing attendance requirements appear in 1st semester examination. He/she shall be allowed to continue his/her studies in the 2nd Semester even if he/she does not clear any paper of the 1st semester and on completing attendance requirements may appear in the 2nd Semester examination.

20. Division Improvement

A candidate who has passed PGDCA examination from this University may re-appear for improvement of division in one or more subjects in the succeeding semesters with regular candidates in order to increase the percentage for obtaining higher division. However, final year candidates who have passed an examination of the University may re-appear for improvement of performance under special examination as per rules of the university.

21. Award of Detail Marks Card

Each candidate of PGDCA on successfully completion of course and passing all the papers of each semester, shall be supplied Detail of Marks Cards indicating CGPA score and Division obtained by him/her in the examination.

22. Award of Degree

The Post Graduate Diploma in Computer Applications (PGDCA) stating the CGPA score and Division, will be awarded to the candidate who has successfully completed the course and passed all the papers of all the semesters. The Diploma will be awarded at the University Convocation. However, a degree in absentia can be issued before the convocation, on completion of required formalities and payment of prescribed fee.



DESH BHAGAT UNIVERSITY, MANDI GOBINDGARH
Faculty of Information Technology and Library Sciences
Department of Computer Science and Applications

PGDCA 1stsem

Course Code	Course Title	Course Type	Internal Marks	External Marks	Total Marks	L	T	P	Credits
PGDCA-101	Introduction to IT	CC-1	40	60	100	4	0	0	4
PGDCA-102	Computer Programming Using C++ Language	CC-2	40	60	100	4	0	0	4
PGDCA-103	DBMS	CC-3	40	60	100	4	0	0	4
PGDCA-104	DBMS Lab	CC-3 Lab	30	20	50	0	0	4	2
PGDCA-105	Computer System & Architecture	CC-4	40	60	100	4	0	0	4
PGDCA-106	Computer Programming Using C++ Language Lab	CC-2 Lab	30	20	50	0	0	4	2
GE-101C*	General English-I	Language	40	60	100	3	0	0	3
EVS-101C*	Environment Studies	FC	25	75	100	2	0	0	2
	Total		285	450	700	21	0	8	25

Environmental Studies is a Qualifying Paper and the marks will not be included in DMC.

Subject Code : PGDCA-101
Title of the course : Introduction to IT

L	T	P	Credits	Weekly Load
3	1	0	4	4

Course Outcomes:

By completing this course, students can:

CO1: Know the basic components of the computer and working of each device.

CO2: Understand the representation of data in computer

CO3: Know the difference between Assembly and High level programming Languages.

CO4: Design Algorithms and Flowcharts Understand the functions of Operating System and fundamentals of Computer Networking

CO/PO Mapping												
(S-Strong Correlation, M- Medium Correlation, W-Weak Correlation)												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	W	M	S	M	W	S	M	S	W	M	W
CO2	S	W	M	M	M	W	S	M	M	W	M	W
CO3	S	W	M	S	M	S	M	M	M	S	M	S
CO4	S	W	S	M	M	W	S	M	S	W	M	W

Theory

Unit	Course outlines	Lecture(s)
Unit-1	Historical Evolution of Computer: Block Diagram of computer, characterisation of computers, types of computers, the computer generations.	2
	Basic Anatomy of Computers: Memory Unit, Input-Output Devices	2
	Computer Software: Introduction, types of software, systems software, GUI,	2
	operating system, high level languages, assemblers, compilers and interpreters.	2

Unit-2	Number System: Non-positional and positional number systems, Base conversion, binary, decimal,	3
	hexadecimal, and octal systems, conversion from one system to the other.	3
	Binary Arithmetic: Addition, subtraction and multiplication.	3
	Applications of Information Technology and Trends, E-Commerce: Meaning, its advantages & limitations,	2
	Multimedia: Concepts, Components and Application.	2
Unit-3	Data Network and Communication: Network types, Transmission,	2
	Network topologies, Internet: Evolution of Internet,	3
	E-mail WWW, FTP, TELNET, IRC, Video Conferencing.	2
	Security management tools: PC tools, Norton Utilities, Virus, worms, threats, virus detection,	3
	prevention and cure utilities, Firewalls, Proxy servers.	2
Unit-4	Information Technology and Society : Applications of Information Technology in Railway,	2
	Airline, Banking, Insurance,	2
	Inventory Control, Hotel Management, Education,	3
	Mobile Phones, Weather Forecasting, Scientific Application,	3

Total = 45

Reference Book:

1. Information Technology , Alexis Leon and Mathews Leon
2. Fundamental of IT, SushilGoel
3. Fundamental of IT and Computers, PradeepK.Sinha and PritiSenha
4. Computer Fundamental, Gupta and Goel
5. Computer Fundamental, D.P Nangal

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

www.sciencebookonline.info

www.digitallibraries.Com

www.ebooksdirectory.com

Subject Code : PGDCA-102
Title of the course : Computer Programming Using C++ Language

L	T	P	Credits	Weekly Load
3	1	0	4	4

SECTION A

Evolution of OOP: Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over its predecessor paradigms.

Characteristics of Object Oriented Programming: Abstraction, Encapsulation, Data hiding, Inheritance, Polymorphism, Code Extensibility and Reusability, User defined Data Types.

Introduction to C++: Identifier, Keywords, Constants, Operators, Size of operator ,Operator precedence and associativity.

Input and output statements, stream I/O, Conditional and Iterative statements, breaking control statements.

SECTION B

Storage Classes: Automatic, Static, Extern, Register

Arrays, Arrays, Bit fields, Enumerations and User defined types.

Pointers: Pointer Operations, Pointer Arithmetic, Pointers and Arrays, Pointer to functions.

Functions: Prototyping, Definition and Call, Scope Rules. Parameter Passing: by value, by address and by reference, Functions returning references, Const functions, recursion, function overloading, Default Arguments, Const arguments.

SECTION C

Pre-processor: #define, #error, #include, #if, #else, #endif,

Classes and Objects: Class Declaration and Class Definition, Defining member functions, making functions inline, Nesting of member functions, Members access control. this pointer. Union as space saving classes.

Objects: Object as function arguments, array of objects, functions returning objects, Const member functions.

Static data members and Static member functions.

Friend functions and Friend classes

Constructors: properties, types of constructors (Default, parameterized and copy), Dynamic constructors, multiple constructors in classes.

Destructors: Properties, Virtual destructors. Destroying objects. Rules for constructors and destructors.

Dynamic memory allocation using new and delete operators,

SECTION D

Inheritance: Defining derived classes, inheriting private members, single inheritance, types of derivation, function redefining, constructors in derived class.

Types of inheritance: Single, Multiple, Multilevel and Hybrid. Types of base classes: Direct, Indirect, Virtual, Abstract. Code Reusability.

Operator overloading: overloading binary operator, overloading unary operators, rules for operator overloading, operator overloading using friend function. Function overloading: early binding, pure virtual functions

Polymorphism : Operator overloading and Function overloading.

Difference between function overloading, overriding.

Text Book:

1. Herbert Schildt, "The Complete Reference C++", Tata McGraw-Hill,
2. Deitel and Deitel, "C++ How to Program", Pearson Education

Reference Book(s):

1. Robert Lafore, "Object Oriented Programming in C++", Galgotia Publications
2. Bjarne Strastrup, "The C++ Programming Language", Addison-Wesley Publication Co
3. Stanley B. Lippman, Josee Lajoie, "C++ Primer", Pearson Education
4. E. Balagurusamy, " Object Oriented Programming with C++", Tata McGraw-Hill

Subject Code : PGDCA-103
Title of the course : DBMS

L	T	P	Credits	Weekly Load
0	0	4	4	4

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1. Understand working of database and different level of architecture, and learn key constraints of database.
- CO2. Learn relational data base modal and lagnuages.
- CO3. Understand SQL query and command ,viewing of data.
- CO4. Learning concepts of normalization and data models

CO/PO Mapping												
(S/M/W indicates strength of correlation) S – Strong, M – Medium, W – Weak												
Cos	Program me Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	M	S	S	M	M	S	S	S	S	S	S	M
CO3	M	S	S	W	M	M	S	S	S	S	S	M
CO4	M	W	S	M	M	S	S	S	S	S	M	M

Theory

Unit	Course outlines	Lecture(s)
Unit-1	Introduction: An Overview of Database Management System, Database System Vs File System, Database System Concepts and Architecture,	2
	Data Models Schema and Instances, Data Independence and Data Base Language and Interfaces, Data Definitions Language, DML, Overall Database Structure.	1
	The Entity Relationship Model: ER Model Concepts, Notation for ER Diagram, Mapping Constraints	2

	. Reduction of an ER Diagrams to Tables, Extended ER Model, Relationships of Higher Degree	2
	Database Keys: Keys, Concepts of Super, Candidate, Primary, Alternate, Composite and Foreign Key, Generalization, Aggregation.	3
Unit-2	Relational Data Model and Language:	2
	Relational Data Model Concepts, Integrity Constraints:	2
	Entity Integrity, Referential Integrity,	2
	Keys Constraints, Domain Constraints,	2
	Relational Algebra, Relational Calculus, Tuple and Domain Calculus.	3
Unit-3	Introduction to SQL: Characteristics of SQL, Advantages of SQL, SQL Data Types and Literals, Types of SQL Commands, SQL Operators & Data Types.	2
	Data Definition Language Commands: Table Creation, Modification the structure of table, Renaming & destroying table, Table & Column level	2
	Constraints. Data Manipulation Language Commands: Insertion, Update & Deletion of data in the tables & Selection of data.	2
	Transaction Control Language: Commit, Rollback, Savepoint. Data Control Language commands: Grant, Revoke, Role Tables,	3
	Views and Indexes, Queries and Sub Queries, Aggregate Functions, Insert, Update and Delete Operations, Joins, Unions, Intersection, Minus, Cursors, Triggers in SQL	2
Unit-4	Data Base Design & Normalization: Functional Dependencies, Normal Forms, First, Second ,	2
	Third Normal Forms, BCNF, Inclusion Dependencies, Loss Less Join Decompositions	2
	Normalization Using FD, MVD, and JDs, Alternative Approaches to Database Design.	2

Total-38

Text Books:

1. Ivan Bayross. "SQL , PL/SQL the Programming Language of Oracle", BPB.
2. Korth, Silbertz, Sudarshan, "Database Concepts" McGraw Hill
3. Bipin C. Desai, "An introduction to Database Systems", Galgotia Pub.

References:

1. Date C.J. "An Introduction to Database System". Addison Wesley
2. Elmasri, Navathe, "Fundamentals of Database Systems" Addison Wesley

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

Subject Code : PGDCA-104
Title of the course : DBMS Lab

This laboratory course will mainly comprise of exercises based on paper PGDCA-103.

Subject Code : PGDCA-105
Title of the course : Computer System & Architecture

SECTION A

Introduction to Computer Organization: Introduction to Computer Organization and Computer Architecture), Representation of Information: Integer and floating point representation, **Various Coding Schemes:** BCD, ASCII, EBCDIC, Error detection and correction codes: Parity Check Method, Hamming code.

Simplification of Boolean Functions using boolean algebra and K-Maps.

Basic Computer Instructions- Types of Instructions: Memory Reference, I/O Reference and Register Reference, Instruction Cycle,

Instruction Formats: Direct and Indirect Address Instructions, Zero Address, One Address, Two Address and Three Address Instructions.

SECTION B

Common Bus System: Introduction to Common Bus System, Types of Buses (Data Bus, Control Bus, and Address Bus), 16 bit Common Bus System

Register Transfer and Micro operations- Introduction to Registers, Types of Registers, Register Transfer Language, Data movement among Registers and Memory using common bus.

Combinational Logic Design: Half-adder/subtractor, full adder/subtractor, parallel adder.

Design of ALU: Arithmetic, Logic and Shift micro-operations, and Block Diagram of ALU.

Addressing Modes- Introduction to different types of Addressing Modes.

SECTION C

Memory Organization: Memory hierarchy, organization and types, RAM, ROM, Secondary Memory and Cache memory

Cache Memory: Initialization of Cache Memory, Writing data into Cache, Locality of Reference and Concept of Hit Ratio.

Cache Memory Mapping Techniques: Direct Mapping, Associative Mapping and Set Associative Mapping.

SECTION D

I/O Organization: I/O interface, need of I/O Interface.

I/O Data Transfer Techniques: Programmed I/O, Interrupt Initiated I/O, Direct Memory Access, DMA Controller.

Input- Output Processor.

Reference Books:

1. M.M. Mano, "Computer System Architecture", Prentice-Hall of India,
2. Computer Organization and Architecture, J.P. Hayes, TMH
3. Computer Organization and Architecture, Stallings, PHI
- 4.P. Heuring, Harry F. Jordan
- 5.Computer Systems Architecture: Baer, Jean Loup

Subject Code : PGDCA-106

Title of the course : Computer Programming Using C ++ Language Lab

Max. Marks: 20

Min. Pass Marks: 40%

This laboratory course will mainly comprise of exercises based on paper PGDCA-102.

Subject Code : **EVS-101C***
Title of the course : **Environment Studies**

Max Marks: 75

Maximum Time: 3 Hrs.

Min Pass Marks: 40%

Course Objectives:

- Creating the awareness about environmental problems among people.
- Imparting basic knowledge about the environment and its allied problems.
- Developing an attitude of concern for the environment.
- Motivating public to participate in environment protection and environment improvement.
- Acquiring skills to help the concerned individuals in identifying and solving environmental problems.
- Striving to attain harmony with Nature.

Unit 1: The Multidisciplinary Nature of Environmental Studies

- Definition, scope and importance
- Need for public awareness. (2 lectures)

Unit 2: Natural Resources

Renewable and Non-renewable Resources

- Natural resources and associated problems.
 - (a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
 - (b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
 - (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
 - (d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, Case studies.
 - (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
 - (f) Land resources: Land as a resource, land degradation, man induced landslides, soil

erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles. (8 lectures)

Unit 3: Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem:(a) Forest ecosystem(b) Grassland ecosystem(c) Desert ecosystem(d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estauries) (6 lectures)

Unit 4: Biodiversity and Its Conservation

- Introduction, definition: genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of biodiversity: in-situ and ex-situ conservation of biodiversity. (8 lectures)

Unit 5: Environmental Pollution

- Definition
- Causes, effects and control measures of A)Air pollution (b) Water pollution C) Soil pollution (d) Marine pollution(e) Noise pollution (f) Thermal pollution(g) Nuclear hazards
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.

- Disaster management: Floods, earthquake, cyclone and landslides. (8 lectures)

Unit 6: Social Issues and the Environment

- From unsustainable to sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and
holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation.
- Public awareness. (7 lectures)

Unit 7: Human Population and the Environment

- Population growth, variation among nations.
- Population explosion—Family Welfare Programme.
- Environment and human health.
- Human rights.
- Value education.
- HIV/AIDS.
- Women and Child Welfare.
- Role of Information Technology in environment and human health.
- Case Studies. (6 lectures)

Unit 8: Field Work

- Visit to a local area to document environmental assets—river/forest/grassland/hill/
mountain.
- Visit to a local polluted site—Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems—pond, river, hill slopes, etc.

(Field work equal to 5 lecture hours)

Recommended Texts:

Environmental Studies For Undergraduate Courses by Erach Bharucha

Suggested Readings

- Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad - 380013, India, Email: mapin@icenet.net (R).
- Carter, W. Nick (1992). Disaster Management: A Disaster manager's handbook. ADB Publication, Manila.
- De A.K., Environmental Chemistry, Wiley Eastern Ltd.
- Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
- Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
- Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R).



DESH BHAGAT UNIVERSITY, MANDI GOBINDGARH

Faculty of Information Technology and Library Sciences

Department of Computer Science and Applications

PGDCA 2nd Sem

Course Code	Course Title	Course Type	Internal Marks	External Marks	Total Marks	L	T	P	Credits
PGDCA-201	Web Technology	CC-1	40	60	100	4	0	0	4
PGDCA-202	Data Structure using C++	CC-2	40	60	100	4	0	0	4
PGDCA-203	Data Communication & Computer Networks	CC-3	40	60	100	4	0	0	4
PGDCA-204	Enterprise Resource Planning	CC-4	40	60	100	4	0	0	4
PGDCA-205	Web Technology-Lab	CC-1-Lab	30	20	50	0	0	4	2
PGDCA-206	Data Structure using C++-Lab	CC-2- Lab	30	20	50	0	0	4	2
PGDCA-207 X	Elective-I	Elective	40	60	100	4	0	0	4
GE-201C*	General English-II	FC	40	60	100	3	0	0	3
HVP-201C*	Human Values & Professional Ethics	FC	40	60	100	2	0	0	2
MGTED-21*	Innovation and Entrepreneurship Development-II	FC	50	50	100	2	0	0	2
	Total		390	510	900	27	0	8	31

Subject Code : PGDCA-201
Title of the course : Web Technology LAB

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1. Create and analyze a web page and identify its elements and attributes.
- CO2. Create web pages using HTML and DHTML and Cascading Styles sheets.
- CO3. Build dynamic web pages using JavaScript and outline technologies that make the web pages and publishing them.
- CO4. Design to create structure of web page, to store the data in web document, and transport information through web.

CO/PO Mapping												
(S/M/W indicates strength of correlation) S – Strong, M – Medium, W – Weak												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	S	M	M	S	M	S	S	M	M
CO2	S	S	S	S	M	M	S	M	S	S	M	M
CO3	S	S	S	S	M	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	S	M	S	S	M	M

PRACTICAL

Unit	Course outlines	Lecture(s)
Unit-1	Basics of HTML: Introduction, HTML documents, head tag, html tags, structure of html program, titles and footers, headings, line	4
	breakparagraphs, center aligning, horizontal line, spaces, attributes, marquee tag, comments, working with images.	3
	Text formatting: bold, italic, underline, strike, superscript, subscript, larger text, smaller text, grouping contents using divisions and spans, marked text, strong text.	4

	Working with tables: overview, table heading, cell-padding and cell-spacing, colspan, rowspan, table backgrounds and borders, inserting images in tables, table height and width, table caption, table header, table body, table footer, nested tables.	3
Unit-2	HTML Concepts: Working with lists (ordered list, unordered list, definition list, type attribute), hyperlinks (text links, image links, email links)	3
	Working with frames, html blocks, backgrounds, fonts, colors, overview of DHTML, CSS.	3
	Working with forms: overview, form attributes, html form controls: Text input control, Checkboxes Controls, Radio Box Controls, Select Box Controls	2
	File Select boxes, Hidden Controls, Clickable Buttons, Submit and Reset Button.	2
	Embedded Multimedia: overview, embed tag attributes, embedding videos, embedding background audio.	2
Unit-3	javaScript: Introduction, script tag, javaScript in body or head, internal and external javaScript, comments, variables, escape characters	2
	keywords, data types, type conversions.	2
	Operators and expressions in javaScript: arithmetic operators, assignment operators, comparison operators, logical operators, unary operators, ternary operators, bitwise operators, operator precedence and associativity.	3
	Control Structures in javaScript: if statements, switch statement, loop statements, break and continue statements.	3
Unit-4	Working with functions in javaScript: Introduction, library functions, various types of user defined functions.	3
	javaScript Objects: objects, creating an object, object properties and methods, javaScript classes, working with Math object.	3
	Advanced concepts of javaScript: javaScript documents, forms, Event and event handling, Browsers and the DOM.	3

Total = 45

Reference Books :

1. Ivan Bayross, "HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
2. Ramesh Bangia, "Internet and Web Design", New Age International
3. Chris Bates, "Web Programming – Building Internet Applications", Wiley India,
4. Jeffrey C Jackson, "Web Technology – A computer Science perspective", Persoson Education,
5. Xavier, C, " Web Technology and Design" , New Age International

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

www.sciencebookonline.info

www.digitallibraries.Com

www.ebooksdirectory.com

Subject Code : PGDCA-202

Title of the course : Data Structure using C++

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1. Comprehend the basic concepts of memory management, data structure, Algorithms and Asymptotic notation.
- CO2. Understand and implement linear data structures such as arrays, linked lists, stacks and Queues.
- CO3. Design non linear data structures trees and Graphs, and implement their operations.
- CO4. Apply appropriate data structure for a given application.
- CO5.** Implement different searching and sorting techniques. Compare different searching and sorting techniques.

CO/PO Mapping												
(S/M/W indicates strength of correlation) S – Strong, M – Medium, W – Weak												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	M	M	S	M	S	S	M	S	S	M	M
CO2	M	M	M	S	M	M	S	M	S	S	M	M
CO3	S	M	S	S	M	M	S	M	S	S	M	M
CO4	M	S	S	S	M	M	S	M	S	S	M	M
CO 5	M	S	S	S	M	M	S	M	S	S	M	M

Theory

Unit	Course outlines	Lecture(s)
Unit-1	Basic Concepts and Notations, Data Structures and Data Structure Operations	4
	Algorithmic Complexity and Time Space Trade-off.	4

	Basic Data Structures and Operations on them: Arrays, Stacks and Queues (Sequential representation) and Their Applications,	3
	Linked List: Introduction, Types, Linked and Sequential Representation of linked list. Implementation of stack and queue using Linked List.	3
Unit-2	Searching and Sorting, use of Various Data Structures for Searching and Sorting, Linear and Binary Search,	3
	Bubble Sort, Insertion Sort, Selection Sort, Merge Sort, Radix Sort, Quick Sort.	3
	Trees-Definitions and Basic Concepts, Linked Tree Representation, Representations in Contiguous Storage, Binary Trees, Binary Tree Traversal, Searching,	3
	Insertion and Deletion in Binary Trees, Binary Search Tree, Heap and Heap Sort Algorithm, AVL Trees.	3
Unit-3	Graphs and Their Application, Sequential and Linked Representation of Graph-Adjacency Matrix, Operations on Graph, Traversing a Graph,	3
	Dijkstra's Algorithm for Shortest Distance, DFS and BFS, Concept of Minimal Spanning Tree, Topological Sort.	3
	Hashing: Introduction to hash table, hash function, resolving collision by chaining and open addressing.	4
Unit-4	File Organization: Sequential File Organisation: Processing Sequential files, Operations on sequential files.	4
	Direct File Organisation : Processing of Direct Files, Operations on sequential files.	2
	Indexed Sequential Organisation: Processing of Indexed Sequential files, Concept of B-Trees, Techniques of External Sorting.	3

Total = 45

Reference Books:

1. Seymour Lipschultz, "Theory and Practice of Data Structures", McGraw-Hill
2. E. Horowitz and S. Sahni, "Data Structures with Pascal", Galgotia, 3rd Edition,
3. A. Tanenbaum, Y. Lanhgsam and A.J. Augenstein, "Data Structures Using C", Prentice Hall of India
4. Mary E. S. Loomis, "Data Management and File Structures", PHI,

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

www.scienceebookonline.info

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Subject Code : PGDCA-203

Title of the course : Data Communication & Computer Networks

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

By completing this course, students can:

CO1: Understand of the OSI Reference Model and in particular have a good knowledge of Layers 1-3.

CO2: Create and Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

CO3: Acquire a basic knowledge of the use of cryptography and network security.

CO4: Understand the basics of Computer Networks and Various Protocols.

CO/PO Mapping (S-Strong Correlation, M- Medium Correlation, W-Weak Correlation)												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	W	W	W	W	W	W	S	M	M	M	W
CO2	M	M	W	W	W	W	W	W	M	M	M	W
CO3	M	M	M	M	W	M	W	W	M	M	M	S
CO4	S	W	W	W	W	M	W	W	M	M	M	S

Theory

Unit	Course outlines	Lecture(s)
Unit-1	Introduction to Data Communications: Concepts & Terminology, Analog& Digital Signals	2
	Data Transmission: Digital &Analog Transmission Technique	2
	Transmission Impairments, Electromagnetic Spectrum.	2
	Transmission Media: Guided Transmission Media &Unguided Transmission Media	2

	Switching: Circuit Switched Networks, Datagram Networks & Virtual-Circuit Networks	1
Unit-2	Data Encoding & Digital Signals : NRZ, Multilevel Binary, Biphasic, Modulation Rate, Scrambling Technique, Digital Data,	2
	Analog Signals : ASK, FSK, PSK. Analog Data	2
	Digital Signals : PCM, DM. Analog Data, Analog Signals : Amplitude Modulation, FM, PM, QAM. Asynchronous & Synchronous Transmissions	2
	Multiplexing: FDM, Synchronous TDM, Statistical TDM	3
	Error Detection & Correction Techniques: Nature of Errors, Parity check, CRC, Hamming code.	3
Unit-3	Computer networks: Goals and applications of networks, Topologies, Categories of Network, Concept of Protocol Services,	3
	Reference models: OSI model, TCP/IP model, Comparison of TCP/IP and OSI models	2
	Data Link Layer: DLL design issues, elementary data link protocols, sliding window protocols	2
	Medium Access Sub layer: Static and dynamic channel allocation, Multiple access protocols - ALOHA, CSMA, CSMA/CD, Collision Free protocol.	3
	Introduction to IEEE standards for LAN: IEEE 802.3, IEEE 802.4, IEEE 802.5, IEEE 802.11	2
Unit-4	Network Layer: Brief discussion on need for network layer, routing algorithm, congestion and its control methods, internetworking	2
	Transport Layer: Transport service primitives, Transmission Control Protocol (TCP), UDP and SCTP.	2
	Internet protocols: Principles of Internetworking, connectionless internetworking, Internet protocols	2
	Network Security: Security requirements and attacks, encryption Public key encryption and digital Signatures.	2
	distributed applications: SNMP, SMTP, HTTP.	2

Total = 45

References:

1. Data & Computer Communications by William Stallings, Pearson Education.
2. Computer Networks by Andrew S. Tanenbaum
3. Data communication by Behrouz Forouzan

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

Subject Code : PGDCA-204

Title of the course : C++ MINOR PROJECT

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

Upon completion of this course, the student will be able to:

CO6. Understand and implement linear data structures such as arrays, linked lists, stacks and Queues.

CO7. Apply appropriate data structure for a given application.

CO8. Implement different searching and sorting techniques. Compare different searching and sorting techniques.

CO9. Manage projects in multidisciplinary environments for the society.

CO/PO Mapping												
(S/M/W indicates strength of correlation) S – Strong, M – Medium, W – Weak												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	S	M	M	S	M	S	S	S	S
CO2	S	M	S	S	M	M	M	M	S	S	S	M
CO3	S	S	S	M	M	M	S	M	M	S	S	M
CO4	S	S	M	S	M	M	S	M	S	S	S	S

Minor Project:

In this laboratory course, students are required to develop a C++ Minor Project.

Unit	Course outlines	Lecture(s)
Unit-1	ERP AND TECHNOLOGY Introduction – Related Technologies – Business Intelligence	3
	E-Commerce and E- Business	3
	Business Process Reengineering	2
	Data Warehousing	2
	Data Mining	2
	OLAP, Product life Cycle management ,SCM,CRM	2
Unit-2	ERP IMPLEMENTATION Implementation Challenges,Strategies,Life Cycle	2
	Pre-implementation Tasks ,Requirements Definition, Methodologies	2
	Package selection, Project Teams	2
	Process Definitions,Vendors and Consultants	2
	DataMigration,Project management	2
	Post Implementation Activities	2
Unit-3	ERP IN ACTION & BUSINESS MODULES Operation and Maintenance	2
	Performance ,Maximizing the ERP System ,Business Modules	2
	Finance, Manufacturing,HumanResources	2
	Plant maintenance, Materials Management,Quality management – Marketing,Sales	2
	Distribution and service.	2
Unit-4	ERP MARKET Marketplace, Dynamics,SAPAG,Oracle ,PeopleSoft	2
	JD Edwards, QAD Inc,SSAGlobal,Lawson Software ,Epicor,Intutive	2
	Enterprise Application Integration ,ERP and E-Business	2
	ERP II ,Total quality management,Future Directions ,Trends in ERP	3

Total = 45

TEXT BOOKS:

1. Alexis Leon, “ERP DEMYSTIFIED”, Tata McGraw Hill
2. Mary Sumner, “Enterprise Resource Planning”, Pearson Education

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

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www.scienceebookonline.info

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Subject Code : PGDCA-206

Title of the course : Data Structure using C++ LAB

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

Upon completion of this course, the student will be able to:

- CO1. Comprehend the basic concepts of memory management, data structure, Algorithms and Asymptotic notation.
- CO2. Understand and implement linear data structures such as arrays, linked lists, stacks and Queues.
- CO3. Design non linear data structures trees and Graphs, and implement their operations.
- CO4. Apply appropriate data structure for a given application.
- CO5. Implement different searching and sorting techniques. Compare different searching and sorting techniques.

CO/PO Mapping												
(S/M/W indicates strength of correlation) S – Strong, M – Medium, W – Weak												
Cos	Programme Outcomes (Pos)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	M	M	S	M	S	S	M	S	S	M	M
CO2	M	M	M	S	M	M	S	M	S	S	M	M
CO3	S	M	S	S	M	M	S	M	S	S	M	M
CO4	M	S	S	S	M	M	S	M	S	S	M	M
CO5	M	S	S	S	M	M	S	M	S	S	M	M

Unit	Course outlines	Lecture(s)
Unit-1	Basic Concepts and Notations, Data Structures and Data Structure Operations	4
	Algorithmic Complexity and Time Space Trade-off.	4

	Basic Data Structures and Operations on them: Arrays, Stacks and Queues (Sequential representation) and Their Applications,	3
	Linked List: Introduction, Types, Linked and Sequential Representation of linked list. Implementation of stack and queue using Linked List.	3
Unit-2	Searching and Sorting, use of Various Data Structures for Searching and Sorting, Linear and Binary Search,	3
	Bubble Sort, Insertion Sort, Selection Sort, Merge Sort, Radix Sort, Quick Sort.	3
	Trees-Definitions and Basic Concepts, Linked Tree Representation, Representations in Contiguous Storage, Binary Trees, Binary Tree Traversal, Searching,	3
	Insertion and Deletion in Binary Trees, Binary Search Tree, Heap and Heap Sort Algorithm, AVL Trees.	3
Unit-3	Graphs and Their Application, Sequential and Linked Representation of Graph-Adjacency Matrix, Operations on Graph, Traversing a Graph,	3
	Dijkstra's Algorithm for Shortest Distance, DFS and BFS, Concept of Minimal Spanning Tree, Topological Sort.	3
	Hashing: Introduction to hash table, hash function, resolving collision by chaining and open addressing.	4
Unit-4	File Organization: Sequential File Organisation: Processing Sequential files, Operations on sequential files.	4
	Direct File Organisation : Processing of Direct Files, Operations on sequential files.	2
	Indexed Sequential Organisation: Processing of Indexed Sequential files, Concept of B-Trees, Techniques of External Sorting.	3

Total = 45

Reference Books:

1. Seymour Lipschultz, "Theory and Practice of Data Structures", McGraw-Hill
2. E. Horowitz and S. Sahni, "Data Structures with Pascal", Galgotia, 3rd Edition,
3. A. Tanenbaum, Y. Lanhgsam and A.J. Augenstein, "Data Structures Using C", Prentice Hall of India
4. Mary E. S. Loomis, "Data Management and File Structures", PHI,

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Subject Code : MGTED-21*

Title of the course : Innovation and Entrepreneurship Development-II

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

At the end of the course, students should be able to

- CO1. Use entrepreneurial traits and know the parameters to assess opportunities.
- CO2. Identify the constraints for new business ideas, systematic process to select and screen a ,design strategies for successful business plan.
- CO3. Be able to evaluate opportunities and understand recent developments.
- CO4. Develop social, leadership and communication skills.

CO/PO Mapping												
(S-Strong Correlation, M- Medium Correlation, W-Weak Correlation)												
CO's	Programme Outcomes (PO's)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	W	M	W	W	W	W	M	W	W	S	M	M
CO2	W	M	W	W	W	W	M	W	W	S	M	M
CO3	W	M	W	W	W	W	M	W	W	S	M	M
CO4	W	M	W	W	W	W	M	W	W	S	M	M

Theory

UNIT	COURSE OUTLINES	LECTURE(S)
	Introduction to Entrepreneur, Entrepreneurship and Enterprise .Importance and relevance of the entrepreneur	3

UNIT-1	Factors influencing entrepreneurship - Pros and Cons of being an entrepreneur	2
	Pros and Cons of being an entrepreneur - Challenges of women Entrepreneurs.	4
	Types of Entrepreneurs -Characteristics of a successful entrepreneur	4
	Entrepreneurial competencies – Factors affecting entrepreneurial growth – Role of entrepreneur in economic Development	4
UNIT-2	Identification of Business Opportunities and tests of feasibility Project Management	4
	Feasibility and Viability analysis – Technical – Financial – Network	3
	Appraisal and Evaluation – Project Report Preparation	3
	Mobilizing resources for start-up. Basic startup problems	4
	Homonyms Commonly misspelled words	4
UNIT-3	Business Idea- Idea generating Techniques- Sources of Product for Business	3
	Prefeasibility Study - Criteria for Selection of Product - Ownership	3
	Capital - Budgeting Project Profile Preparation - Matching Entrepreneur with the Project	3
	Feasibility Report Preparation and Evaluation Criteria- Venture Creation	3

E-books

<https://www.swayamprabha.gov.in/>

<https://nptel.ac.in/course.html>

www.pdfdrive.net

www.scienceebookonline.info

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Subject Code : ENG-201C*

Title of the course : GENERAL ENGLISH

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

At the end of the course, students should be able to

- CO1. To increase the reading speed and comprehension of academic articles.
- CO2. Enlarge students vocabulary by keeping a vocabulary journal and summaries using the process approach.
- CO3. Know the beauty of the coherence of Language and Literature
- CO4. Demonstrate and apply appropriate study skills for college success, including but not limited to annotation, note taking, completion of assignments, and reflective journal writing.

CO/PO Mapping												
(S-Strong Correlation, M- Medium Correlation, W-Weak Correlation)												
CO's	Programme Outcomes (PO's)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	W	W	W	W	W	W	W	W	W	S	W	W
CO2	W	W	W	W	W	W	W	W	W	S	W	W
CO3	W	W	W	W	W	W	W	W	W	S	W	M
CO4	W	W	W	W	W	W	W	W	W	S	W	M

UNIT	COURSE OUTLINES	LECTURE(S)
Unit-1	One unseen passages with a variety of very short answer	2
	short answer or MCQ type questions to test comprehension	2
	interpretation and inference	3
	Vocabulary such as word formation	4

	inference of meaning will also be tested	4
UNIT-2	Vocabulary:Antonyms	2
	Synonyms	2
	Idioms and Phrases	2
	One word Substitution	2
	Homonyms Commonly misspelled words	2
	Prepositions	2
	Grammar: Spotting Errors	2
	Direct and Indirect speech Active/ Passive voice	2
	Prepositions	2
UNIT-3	Writing a short story based on a given outline or cue/s in about 150 - 200 words.	3
	Writing an Article/ Descriptive Paragraph(person/ place/ event/diary entry) in about 100-150 words based on visual or verbal cue/s.	3
UNIT-4	Writing a Resume	3
	Writing a letter of application the interview / asking, answering questions / language of a contract of employment	3

Total-45

Recommended books:

- **English Grammar** in Use, R.Murphy (Cambridge)
- Oxford Practice **Grammar** Intermediate, J.Eastwood (Oxford) ...
- Oxford Practice **Grammar** Advanced, G.Yule (Oxford) ...

E-books

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<https://nptel.ac.in/course.html>

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Subject Code : HVP-201C*

Title of the course : Human Values & Professional Ethics

L	T	P	Credits	Weekly Load
4	0	0	4	4

Course Outcomes:

At the end of the course, students should be able to

- CO1. Learn the moral issues and problems; find the solution to those problems.
- CO2. Learn the need for professional ethics, codes of ethics and roles, concept of safety, risk assessment.
- CO3. To create an awareness on professional ethics and Human Values.
- CO4. Learn the roles, concept of safety and risk assessment.

CO/PO Mapping												
(S-Strong Correlation, M- Medium Correlation, W-Weak Correlation)												
CO's	Programme Outcomes (PO's)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	W	W	W	W	W	W	W	W	S	S	W	W
CO2	W	W	W	W	W	W	W	W	S	S	W	W
CO3	W	W	W	W	W	W	W	W	S	S	W	M
CO4	W	W	W	W	W	W	W	W	S	S	W	M

Unit	Course outlines	Lecture(s)
Unit I	UNIT 1- Introduction - Need, Basic Guidelines and Content	3
	Understanding the need, basic guidelines, content and process for Value Education.	3
	Self Exploration–what is it? - Its content and process; Natural Acceptance" and Experiential Validation- as the mechanism for self exploration.	2

	Continuous Happiness and Prosperity- A look at basic Human Aspirations	3
Unit II	UNIT II- Process for Value Education	3
	Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority	2
	Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario	3
	Method to fulfil the above human aspirations: understanding and living in Harmony at various levels	2
Unit III	Understanding human being as a co-existence of the sentient „I“ and the material,„Body“	2
	Understanding the needs of Self („I“) and „Body“ - <i>Sukh</i> and <i>Suvidha</i>	2
	Understanding the Body as an instrument of „I“ (I being the doer, seer and enjoyer)	2
Unit IV	UNIT IV- Harmony in Myself!	2
	Understanding the characteristics and activities of „I“ and harmony in „I“	1
	Understanding the harmony of I with the Body: <i>Sanyam</i> and <i>Swasthya</i> ; correct appraisal of Physical needs	2
	Programs to ensure <i>Sanyam</i> and <i>Swasthya</i> - practice exercises and case studies will be taken up in practice sessions.	2
Unit V	UNIT V- Understanding Harmony in the Family and Society- Harmony in Human-	2
	Human Relationship Understanding harmony in the Family- the basic unit of human interaction.	2
	Understanding values in human-human relationship; meaning of <i>Nyaya</i> and program for its fulfillment to ensure <i>Ubhay-tripti</i> ;	2
	Trust (<i>Vishwas</i>) and Respect (<i>Samman</i>) as the foundational values of relationship.	2

Total-42

Recommended Books:

1. R R Gaur, R Sangal, G P Bagaria, 2009, *A Foundation Course in Value Education*.

Suggested Readings / Books:

- 1 Ivan Illich, 1974, *Energy & Equity*, The Trinity Press, Worcester, and HarperCollins, USA
- 2 E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond & Briggs, Britain.
- 3 A Nagraj, 1998, *Jeevan Vidya ek Parichay*, Divya Path Sansthan, Amarkantak.
- 4 Sussan George, 1976, *How the Other Half Dies*, Penguin Press. Reprinted 1986, 1991
- 5 PL Dhar, RR Gaur, 1990, *Science and Humanism*, Commonwealth Purblishers.
- 6 A.N. Tripathy, 2003, *Human Values*, New Age International Publishers
- 7 Subhas Palekar, 2000, *How to practice Natural Farming*, Pracheen(Vaidik) Krishi Tantra Shodh, Amravati.
- 8 Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, *Limits to Growth – Club of Rome’s report*, Universe Books.
9. E G Seebauer & Robert L. Berry, 2000, *Fundamentals of Ethics for Scientists*

E-books

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